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WHAT IS CLAIMED IS:

1. A motion actuator comprising a movable shaft and a main body;

wherein said main body comprises:

a stage;

two clamps provided in said stage and controlled respectively by bimorph structure; and

an expansible/contractible device provided in said stage and controlled by a bimorph structure;

characterized in that said movable shaft comprises a flat upper surface and that by sequentially activating said two clamps and said expansible/contractible device separately and jointly, axial motions of said movable shaft relative to said stage in small steps are made.

2. The motion actuator according to claim 1 wherein said bimorph structure comprises a cut cylindrical piezoelectric tube section in a hole enclosed by a thin wall in said stage.

3. The motion actuator according to claim 1 wherein said movable shaft comprises hollow inside to house any device or apparatus that needs to be translated

4. The motion actuator according to claim 1, further comprising spring structure at said clamps, adjustable by a screw, to provide contact with the top surface of said movable shaft, so that said clamps grip said movable shaft firmly when actuated.

5. The motion actuator according to claim 1 wherein said movable shaft is supported by two lines at bottom said two clamps respectively.

6. The motion actuator according to claim 1 wherein said stage, said clamps and said expansible/contractible device are made in one piece with a hard material.

7. The motion actuator according to any one of claims 1-6, wherein said movable shaft comprises a hollow reverse arch shape tube in its cross section, whereby to provide an enlarged flat upper surface.

8. The motion actuator according to any one of claims 1-6, further comprising a stopper to limit the clamping angle of each said clamps.

9. The motion actuator according to claims 7, further comprising a stopper to limit the clamping angle of each said clamps.

10. The motion actuator according to claim 5, further comprising a pad of a different material on each of said two lines and said pads.